lume 21 June, 1962 Number 6

CATCHING KING CAT

Jim Sherman Photo.

Snags and old stumps offer catfish cover.

can catch catfish if you learn a bit about them.

Harry M. Harrison
Fisheries Biologist

ogical studies during the past 20 years that have pried into the e life of the channel catfish have revealed many things of st. A couple of these important to the catfisherman are: that Iowa's flowing waters, as well as some of her natural and artilakes, have continuing large numbers of channel catfish; and nost of the catfish caught in the course of any single year will ked in the spring and early summer. A third conclusion worthy cial mention is that channel catfish, particularly the large ones exceeding a pound in weight), are among the most difficult of Iowa's fish to catch. If you happen to number as one of the sful catfishermen, you belong to a small and select fraternity lers. If you do not belong to this distinguished group, there is ason under the sun that you cannot join. Membership is not d. All you have to do is master a few simple fishing techniques, these to your angling efforts, and you will soon be catching catfish.

expert will find little here that he does not already know and practice, but the beginner or unsuccessful catfisherman should pick up a few pointers which, if he follows, will most assuredly guarantee him more fish.

The first thing to be considered is a little something on catfish psychology. Remember the catfish is no third class moron. He is as sharp as his pointed whiskers. When it comes to being alert, the catfish stands second to none in the waters of Iowa. He is equipped with very delicate sensory organs which enable him to know of your presence before you can possibly know of his.

In short, a catfish will out-hear a woman on a party line, outnose a reporter on a scandal case, and come very near out-seeing a sailor on shore leave. So by all means when you fish for catfish be sure not to make unnecessary racket.

You can talk, but DO NOT disturb the water, bang around on your bait can, stamp the ground, or smash at the water with a tenpound sinker. A good way to keep the catfish from knowing that you are there is to fish for him at a distance. Use all the line that you can handle and get your bait out away from you.

Now, when and where to fish for catfish. For the most part, catfish

(Continued on page 48)

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CIRCULATION THIS ISSUE.....51,000

ERRINGTON RECEIVES AWARD

Dr. Paul Errington of Iowa State University has been awarded the Aldo Leopold Medal for an outstanding contribution to wildlife conservation. The award was made at the North American Wildlife Conference held in Denver.

Dr. Errington is the second Iowan to receive this award. It was first awarded in 1950 to the late "Ding" Darling.

Errington is noted for his work on the effect of predation on animal populations and his studies of muskrats and marsh management.

He was featured in a December issue of LIFE magazine as one of the country's seven outstanding naturalists. His published works include two books: *Muskrats and Marsh Management* and *Of Men and Marshes*. The underlying theme of his books is the appreciation of marshes and their value toward maintaining wildlife.

Dr. Errington has been with the Iowa Cooperative Wildlife Research Unit since its beginning The unit is a joint effort of the State Conservation Commission, U.S. Fish and Wildlife Service, and Iowa State University.

NEW PATROL BOATS

Five new boats have been added to the Commission's Water Safety Patrol Fleet, bringing the total to seventeen craft. These new boats will be stationed at the Coralville Reservoir, North Twin Lake, the Lost Island Lake Area, the Clear Lake Area, and the Okoboji Area.

The new boats run from 16-18 feet, depending on where they are to be stationed, and are powered by four 40 h.p. motors and one 75 h.p. motor.

The Water Safety Patrol enforces the state laws and regulations which have been developed. The Patrol's primary responsibility is to promote and insure safety for the thousands of Iowa boating enthusiasts.

Sea lilies are really animals but they look like the plant for which they are named.

COMMISSION MINUTES

GENERAL

Opening dates were established for pheasant, Hungarian partridge, quail, squirrel, rabbit, and raccoon hunting.

Purchase of a new Commission airplane was discussed.

Travel was authorized to Winner, South Dakota, to pick up exhibit animals.

Methods of handling deer license applications were discussed.

Travel was authorized to the midwest regional law enforcement officers meeting at Regina, Saskatchewan, May 30 and 31 for five people.

Authorization was given for one person to travel to Superior, Wisconsin, to a fire protection meeting.

Travel authorization was approved for one person to attend a regional farm foresters meeting at Bottineau, North Dakota.

A delegation of Big Sioux River farmers met with the Commission to discuss the problem of flooding on the Big Sioux River.

A delegation from Spirit Lake area met with the Commission to ask permission to establish a water ski jump and slalom course in the lakes area. This request was approved subject to agreeable arrangements being worked out with the Conservation Commission staff.

A delegation representing the Sioux Bowmen met with the Commission to ask permission to lay out an archery course in Stone Park.

COUNTY CONSERVATION PROJECTS

Boone County received approval for the acquisition of 118.95 acres of land at a total cost of $23,500 as part of a 628 acre recreation area in which a 170 acre artificial lake will be constructed. This area will be known as Don Williams Lake.

Linn County received approval for acquisition of the Abbe Creek School at a cost of $750. This area includes 1½ acres of land and the school will be used as a county museum.

Linn County also received approval for the acquisition of 104 acres of land at a total cost of $46,800, located on Morgan Creek near Cedar Rapids.

Cerro Gordo County received approval for the acquisition of 80 acres of slough area to be known as Zirbel Slough, at a total cost of $14,000.

The following development plans were approved: Delaware County, Fountain Spring Creek area; Tama County, boat launching area; Winnebago County, Rice Lake boat dock; Worth County, Rice Lake boat dock; Wright County, Eldridge Park.

Sioux County Conservation Board received approval for a management agreement for Oak Grove State Park for 25 years.

MISSOURI RIVER SPORTS FISHING

Robert E. Beebe
Commissioner

Such adjectives as tremendous, fabulous and unbelievable describe the increase in sports fishing potential on the Missouri River since the closing of the upstream dams. This does not mean that all fishermen on all occasions have complete success, but the ones who know the proper places to go and the proper methods are unstinting in their praise of the sports fishing development.

Some of the most popular areas include: the riprap area between the mouth of the Big Sioux and Floyd Rivers in Sioux City, Snyder Bend, Winnebago Bend, Decatur Bend, Blackbird Bend, Brown's Lake, Blue Lake, and Lake Manawa.

Prior to the closing of the upstream dams, the river carried the maximum load of silt, and was described as "Big Muddy" and "too thin to plow—to thick to drink." Now, at stabilized flow, the water has cleared to such an extent that on occasion duck hunters use the river water for making coffee.

While the "silt strainer fish" still exist, many varieties of sport fish have appeared and are present in profusion. Walleyes, sauger, bass, channel catfish, some northern pike, together with other common and some exotic fish are present in great numbers. The swift water in the channel areas appears to develop chunky and well-muscled fish. The quiet waters in the presently existing oxbows are excellent spawning areas and provide food for rapid growth and development.

Taking the biologist's position that habitat is responsible for successful propagation and growth, an obligation develops on the part of various agencies to attempt to maintain an environment of maximum productivity. We need to maintain more than just the channel water for propagation and growth during the early stages.

The Army Engineers in developing the river have stabilized the channel for transportation, and cut across many of the great sweeping bends, leaving these bends as oxbow lakes. Past experience has established that, unless preventative measures are undertaken, the river at high stages "silts in" the oxbows, leaving little, if any, water surface or depth.

The proposed plans are to protect the oxbows with upstream and downstream levees, preferably with control structures at both ends. Water surface in some of the present oxbows, such as Snyder Bend, Winnebago Bend and Middle Decatur Bend, have water areas as large as 600 to 800 acres, and depths to twenty feet. The development of artificial lakes envisions expenditures of high sums of money. In the oxbows we have natural habitats, free for the taking if they can be protected from siltation.

The Army Engineers have certain funds which are earmarked for recreation development. Upon proper presentation, Congress looks with favor toward appropriating money to preserve natural wildlife and fish habitat. Western Iowa and Eastern Nebraska have large populations in close proximity to the Missouri River. Unless immediate remedial steps are taken, the natural fish factories of the oxbow lakes are going to be lost, as have other oxbow lakes in the past. It therefore behooves all interested nature lovers to express their views both publicly and privately, for the allocation of funds to preserve and maintain the natural fish and wildlife habitats which now exist.

"The squeaking wheel gets the grease," and this is the time to squeak to maintain and promote the continued development and preservation of Missouri River Fishing.

FISH AND GAME

A letter to various state departments concerning Commission support of a state-wide, two-way microwave system was approved. Further action on purchase of two-way radios was delayed pending FCC action on frequency assignments.

Approved purchase of 24 acres on the Big Rock Access Area bordering the Volga River in Fayette County.

LANDS AND WATERS

A resolution to convey Woodthrush Preserve in Jefferson County was recommended to the Executive Council.

A request for an access road on Black Hawk Lake State Park in Sac County was approved.

A request for 4th of July fireworks display on a raft on Storm Lake by the Storm Lake Junior Chamber of Commerce was approved.

A request by the Carroll County Conservation Board for a concession stand at Swan Lake was approved.

A dock permit, for one year only, adjacent to Lot 8 at Sherwood Hills on Clear Lake, was approved.

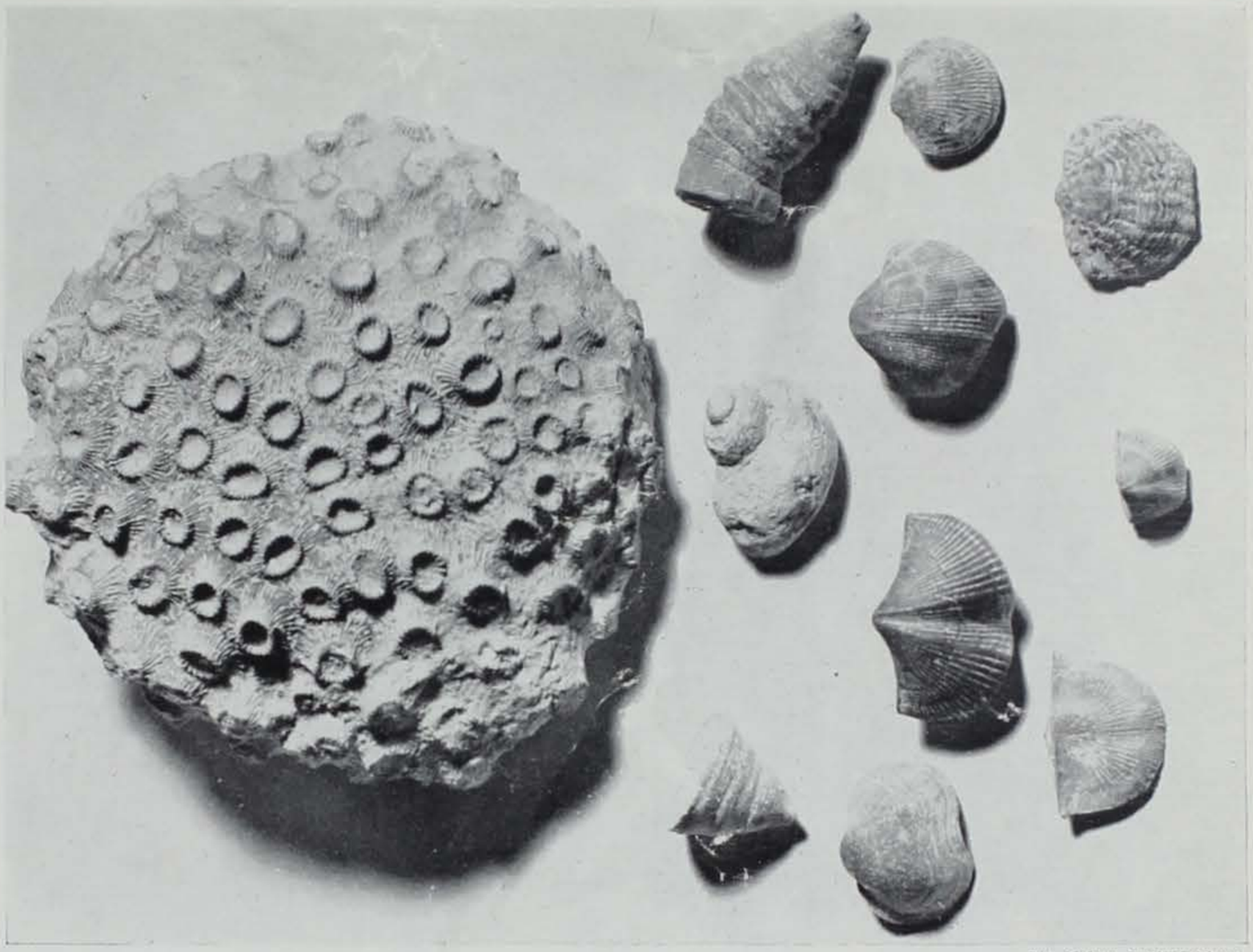
Approval was given to an option for 3.4 acres of land near Lake Ahquabi for use in erosion control.

The Conservation Commission then toured Stone Park, the Big Sioux River area and various areas on the Missouri River.

Bats carry their newborn with them for a few days after birth. The young bat clings to its mother's fur as she flies about in search of food.

...EMS, MINERALS AND FOSSILS OF IOWA

Jack Musgrove
Curator
State Department of History and Archives



Des Moines Register Photo.

Some unusual Iowa fossils. The big coral to the left is Pachyphyllum woodmani. In the left center column are two ruqose corals with a gastropod in the center. The two columns to the right contains various brachiopods.

...hile Iowa can hardly be con...ed prime collecting grounds ...mineral or lapidary enthusi... it does have an interesting ...gical history as well as sev... excellent fossil localities. Col...rs can, if they will, find in...ting pickings in every corner ...e state.

...va's rolling prairies show the ...t of glaciation that occurred ...g the last million years. They ...he chief feature of the land...e. In many portions of the ... one can see terminal morains, ...al boulders, and other fea... typical of glacial terrain. ... while the glaciers removed or ...ed many features of interest ...e rock hobbyist, they also left ...d deposits of interest as well ...e soil on which Iowa's agri...ral prosperity is based.

...r hundreds of years the wood...lls along Iowa streams were ...omes of many cultures of In... Remains of their villages ...mounds are found along all ...r streams. Of national interest ... Effigy Mounds National Mon...t in northeastern Iowa, near ...owns of McGregor and Mar...e. Here are preserved pre...ric Indian workings—large ...ds in the shapes of animals ...birds.

...cellent collections of Indian ...acts have been made in the ... On Iowa's hills and in the ...s between them, the careful ...tor may find beautiful flint ...hert projectile points, finely ... grooved axes, pottery frag...s, and other objects of in...

...ectly beneath the topsoil over ... of the state lies the exten...glacial drift. Here the remains ...leistocene mammals—masto...nammoth, musk ox, and Pleis...e bison — are sometimes ..., particularly in gravel pits ... stream beds. Throughout ... glacial deposits also occur ... Superior agates, petrified ... jaspers, and other rocks

Iowa State Museum Photo.

...ish and sea urchins from LeGrand.

brought from the north by the glaciers. The areas near Muscatine and Bellevue along the Mississippi River have for many years been especially productive of fine cutting material, particularly Lake Superior agates.

Glacial action has removed practically all of the later geological formations leaving only Paleozoic rocks exposed as bedrock over much of the state. Northwestern Iowa is mostly underlain by Cretaceous bedrock, but it is generally barren of interesting specimens to lure the collector.

In the southern half of Iowa the Pennsylvanian period is exposed in many places and strip mining of soft coal is a healthy industry. Coal beds in the Knoxville area yield beautifully preserved coal plant stems, many of cutting quality. Also in the formation are found large septarian nodules containing crystals of calcite, aragonite, barite, pyrite, and other minerals. Beautiful selenite crystals and rosettes also are found occasionally in these coal deposits. A fossiliferous cutting material popularly known as rice agate is obtained from formations near Red Oak.

Mississippian period deposits extend as a band diagonally through the state from southeast Iowa, northwest to Humboldt and Gilmore City. Some of the world's finest fossils have come from Burlington, Keokuk, Le Grand, and Gilmore City. Mississippian specimens of the finest quality have gone from these areas to museums all over the world. In particular, echinoderms—crinoids, sea urchins, starfish, and blastoids—have occurred in rare perfection. Unfortunately, most of the quarries which once produced these specimens have been obliterated or are now non-productive, but careful searching occasionally produces excellent fossils that have been passed over by collectors.

Quarries near Pella have produced excellent imprints of coal plants as well as large fauna of late Mississippian fossils. Excellent brachiopods, blastoids, and an occasional small trilobite are found in this area.

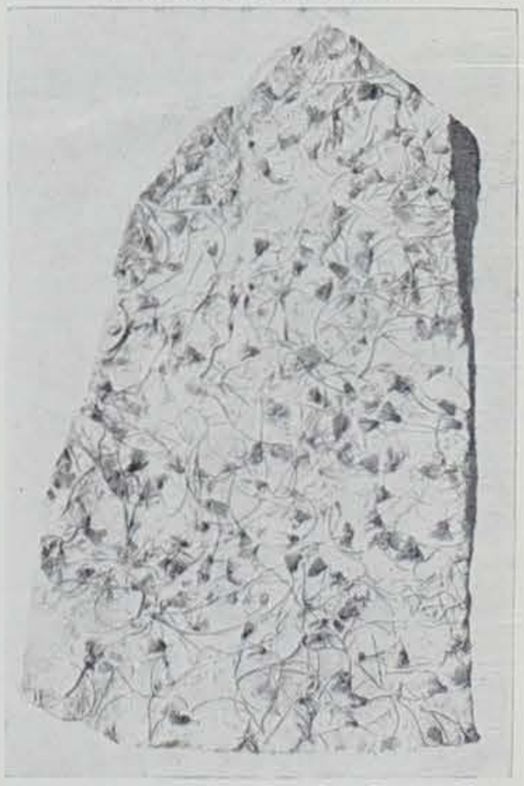
Among the lower layers of Mississippian formations is the lower Warsaw, where the famous Iowa geodes are found. Areas along the Mississippi and Des Moines Rivers in southeastern Iowa, across the Mississippi in Illinois, and extending down into Missouri, produce the beautiful quartz-filled geodes for which this region is famous. Collectors will find the areas around Keokuk, Montrose, and St. Francisville, Missouri, worthy of exploration if this type of specimen is desired.

From the City of Davenport through Iowa City and northeast to Mason City lies a band of Devonian strata which include the world-famous Hackberry formation near the town of Rockford, long a classic area for paleontologists. Marl from this region produces more than a hundred kinds of beautifully preserved Devonian fossils.

Near Iowa City and the adjoining town of Coralville (so named for the large coral reefs that occur in the Devonian rocks there), one can collect corals identical to the well known Petoskey stone. Rock quarried here was once termed birdseye marble and used as an

In the area from Clinton northeast through Monticello and Strawberry Point are massive for...ornamental stone.
...mations of Silurian limestones. Some of the beds produce large numbers of excellent corals. While many areas are barren, only a short distance away one often may

(Continued from page 43)



Iowa State Museum Photo.

A beautiful plate of crinoid specimens from the quarries at LeGrand in central Iowa.

WHY CRUISE TIMBER?

Taking Inventory

Jim Bulman

Any landowner who has walked through his timber with a forester for the purpose of gathering information to be used in management of the area may have wondered what the sense is of following a predetermined path across gullies and through the thickest underbrush, of measuring quite a number of trees and of finally performing several calculations only to come up with a figure representing the approximate number of board feet of timber on the area.

It may seem that this is useless information. It won't change the amount of timber on the area, it won't make it grow faster, and it won't even make it more valuable. So why?

This information, or any type of information is worthless unless it is put to use. Put to use, however, the information gained from a cruise of timber tells a forester what things are needed to make the forest more productive, what can be cut and how often, how many board feet are available and what the growth rate is.

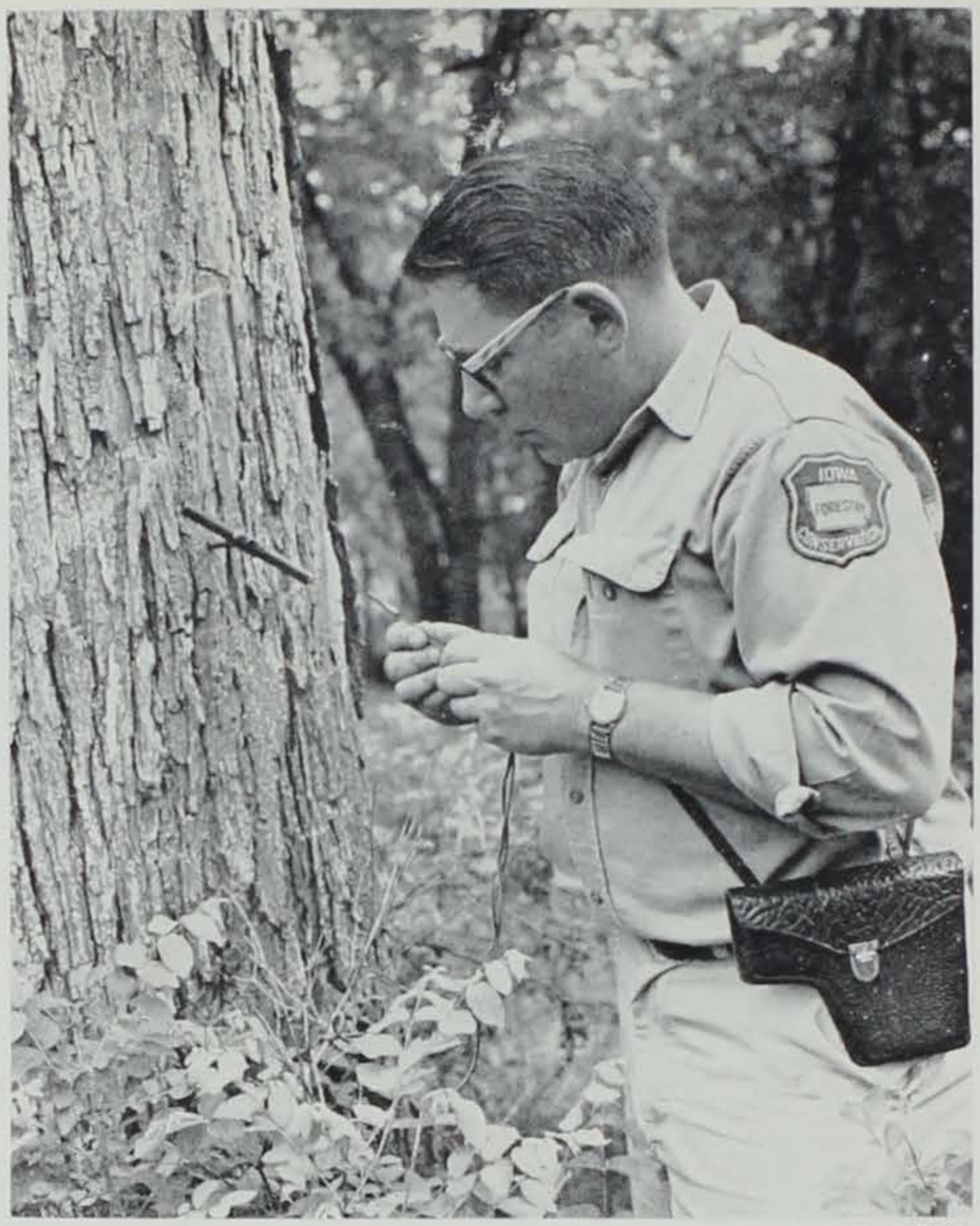
Let us compare the forest to a factory for a moment to see why this inventory is necessary and then let us follow the forester through the timber to see how the job is done.

A forest, like a factory, is a plant which produces goods. Factory managers take periodic inventories to determine how much material and equipment is on hand. This is their capital. A record of costs and returns supplies them with the information they need to determine their profits and rate of return on their investment. If their profit is nonexistent or if their rate of return is low they will take steps to correct the situation.

In the forest we measure trees to determine the volume of timber. This is our growing stock or capital. We measure the rate of growth which indicates what the production is. Knowing these things we can then set up a production schedule which will neither deplete the forest resource nor allow it to become wasted. If our inventory indicates that the forest is unproductive we can take steps to correct the situation.

This, then, is what we hope to do with the information we have gathered. Here is how we go about collecting the information or, in other words, "cruising timber."

Since it would be time consuming and expensive to measure every tree in the forest, the cruiser must resort to a system of sampling in order to obtain the data he seeks. Basically what he does is to measure small areas throughout the whole forest. These small areas, or plots as they are called, must be selected without personal bias on the part of the cruiser and they should represent the forest as a whole. This is why the cruiser goes up hill and down, across gullies and through the thickest brush to locate the sample plot; to confine his activities to the part of the forest where the going is easy would defeat his purpose.



George Tovey Photo.

Using an increment borer, this forester can find the rate of growth for this tree.

Once the plot is located, its boundaries are delineated and every tree on the plot is measured. The measurements include the diameter and the usable height and from this the volume of the tree in board feet can be determined. Certain trees are also measured for growth. A tool called an increment borer which extracts a round core of wood about the size of a pencil from the tree is used. By counting the number of rings in one inch across the cross section of the tree, the number of years required to grow an inch in diameter can be estimated.

Back at the office, total volumes and growth rates are computed. Volume in board feet is computed separately for the different tree species and different timber classes such as growing stock and harvest trees, pulp wood or saw timber. This information indicates how much of the timber is growing and should therefore be left on the area to grow some more, also how much of the timber has stopped growing and should be removed. The growth rate indicates how much wood is being added to the forest each year. This amount of wood can be cut every year without depleting the forest.

This is how and why timber is cruised. It is not possible for any business to be successful without periodic inventories, nor is it possible to manage a forest successfully without cruising it from time to time.

The otter is not nearly as prolific as most other fur bearers, only one to three young are born to the litter.

GEMS—

(Continued from page 43)

find fossils in abundance. Backbone State Park, an attractive area of rugged, rocky eastern Iowa woodland, has Silurian outcroppings filled with casts of large brachiopods. Collecting in the park is forbidden.

From Dubuque to Decorah are layers of Ordovician limestones some of which have been very productive of good fossils. Around Clermont and Elgin, the careful student who isn't afraid of hard work can find well preserved trilobites of more than twenty species. Gastropods, sponges, brachiopods and large cephalopods are also common in the region. Ordovician rocks near the town of Graf are completely filled with small cone shaped cephalopods along with some other fossils.

Near the town of Lansing in northeastern Iowa occurs an outcropping of Cambrian rocks which contain the remains of some of the earliest of Iowa fauna. While the formation is not productive of specimens of interest to the average collector, the serious student finds portions of early trilobites and other life in this region. Northeastern Iowa is also one of the state's most scenic areas. Its wooded hills and picturesque valleys are worthy of the trip.

In extreme northwestern Iowa Gitchie Manitou State Park contains the state's very oldest geological formations, the Sioux quartzite of pre-Cambrian (Huronian) age.

Those visiting the state and wishing to collect can find good pickings if they obtain permission to work in quarries and gravel pits. Keep an eye open for interesting outcroppings in road banks. Check with local clubs and rock collectors for information. The surface of Iowa yields a vast treasure of agricultural wealth and beneath the surface are also found many treasures for collectors of agates, crystals and fossils—not always easily found, but worthy of the effort.

NEW FISH SPECIES ADDED TO IOWA LIST

A new fish species, the spotted gar, has been added to the list of 133 native Iowa fishes. Although it had previously been thought to exist in the state, there were no records to verify it.

On August 14, 1961, a spotted gar was collected in Pool 19 of the Mississippi River about nine miles north of the dam at Keokuk. It measured 10.7 inches in total length and was taken while seining close to the Illinois shore. While this fish was actually collected within the Illinois boundary, it should also inhabit other areas of Pool 19 between Keokuk and Burlington, Iowa, preferably the quiet, weedy localities. It can probably now be listed as an Iowa fish.

The spotted gar bears a superficial resemblance to the shortnose gar and to the longnose gar, both of which are abundant in the Pool 19 area. In snout and general body form, the spotted gar is very similar to the shortnose gar. The spotted gar, as its name implies, is boldly spotted, both dorsally and ventrally. All fins and the dorsal and ventral portion of the head are heavily blotched and spotted. The shortnose gar also has some spots but these spots are normally confined to the posterior half of the body. The number of rows of scales, from head to caudal fin, in shortnose gar is 59 to 63 while the spotted gar has 54 to 58. The number of rows around the body in shortnose gar is 38 to 44 and in spotted is 32 to 38.

T) OUTWIT A DUCK

lnother Experiment in Nesting

Denny Rehder

th the duck nesting now on owa, the old problem of dling populations is with us n. With the decline of duck ıction from the prairie pot- country, marginal areas offer s for many kinds of water-

va is one of these marginal s in which we find nesting s. At one time this state was ajor producer of waterfowl, the westward movement of zation with its changing land nd drainage took away most he potholes the ducks de- ed on for nesting.

veral programs are aimed at ıg the waterfowl population e state. Acquisition and resto- n of many present and former h area helps to provide sites for family-minded s. Programs advocating sen- land management, increased rfowl banding, and active h management are in progress. March issue of the CONSER- NIST carried a story on the ment of predator-proof arti- nests on many state areas. e nests are now out in the hes and water areas provid- dditional nesting sites.

e problem of predation is an esting one. The bulk of our -owned and managed areas ght in the center of intensive ng operations. They offer e wildlife habitat, not only ucks, pheasants, rabbits and game species, but prime at for the many predators in These nesting boxes are to cut down the losses from tion.

e latest move in our program creasing waterfowl production release of a hundred mallard on game areas in northwest These areas already have existing populations of ducks. Although the hens were domestic, they were selected on the basis of their wild characteristics — size, weight, etc.

Jack Kirstein Photo.

This hen mallard may end up rather fashion-minded with the yellow paint on her speculum and the back of her head.

The purpose of this release was to see if domestic ducks would mate with wild drakes and increase the populations in these areas.

Each hen was banded and the speculum and back of head painted with yellow paint for observation purposes. They will be checked periodically each month by fieldmen in each area. Corn was placed about each area to help hold the ducks in that spot. Corn was used, since it was the prime food for the domestic ducks.

Some of the hens were wing-clipped and the rest were fliers. So far it appears that the fliers are pairing off and mating sooner than the wing-clipped birds. Mating is taking place and it is expected that during the summer banding program, we will learn more of the nesting success of these hens.

If your boat capsizes or turns turtle, *don't leave it!* STAY WITH THE BOAT! It is your only link with life, and will float indefinitely even when filled with water. Do not try to swim to shore, but stay with the boat and wait for help.

The Cooper's hawk and sharp shinned hawk look a lot alike, but the Cooper's hawk is larger and has a round tail. The sharp-shinned hawk has a square tail.

Jack Kirstein Photo.

en is banded for identification in the hey turn up at a future date.

Jack Kirstein Photo.

. . . and with the painting and banding out of the way, she flies off to find a mate.

NEW BOOST FOR FARM PONDS

Mayhew Develops Control Method

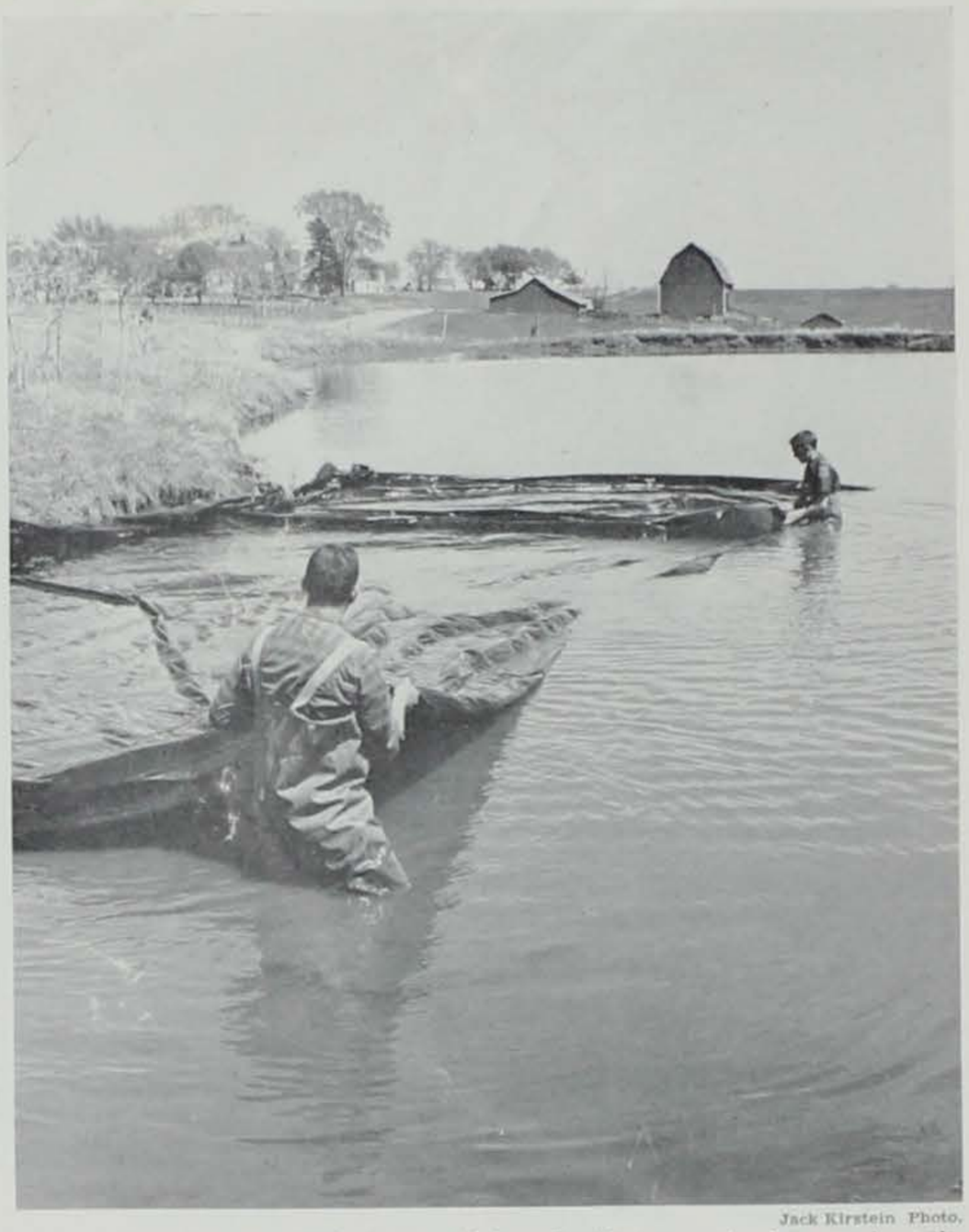
Denny Rehder

Many farm pond owners in the southern part of the state have become increasingly disturbed with the problem of aquatic vegetation choking their ponds. When the pond becomes clogged with weeds, fishing and recreation suffer. Not only is it harder to get through the dense vegetation to fish, but this dense cover offers good escape for panfish from predatory fish.

Consequently, a population imbalance is reached that results in an over-abundance of smaller fish. They become stunted and grow slowly, offering little but disappointment to the fisherman.

Chemical control of this vegetation has been used successfully, but it has two disadvantages. Most farm pond owners do not have the mechanical means or technical knowledge to apply chemicals needed for control. Also, many chemicals contain ingredients toxic to other forms of life, making it inadvisable to apply these chemicals to waters used for human consumption or livestock watering.

Jim Mayhew, a fisheries biologist with the Commission, has helped to develop a low-cost effective mechanical control for most species of submergent aquatic vegetation. Mayhew has experimented with sheets of black polyethylene plastic placed over the vegetation beds. The experiments began with one plot in 1960 and seven plots last year. He has found that by cutting off the sunlight from these plants a complete kill of most species can be attained in 18 to 30 days.



Jack Kirstein Photo.

Jim Mayhew, right, developed the use of these floating covers for farm pond weeds.

The cover not only shuts out sunlight, but the black absorbs heat, warming the water directly beneath to 97° in some cases. Mayhew believes that this increase in temperature may hasten the kill of this unwanted vegetation, and increase the rate of plant decomposition.

In most cases, it was found that a simple water plant, *filamentous algae*, revegetated the pond bottom in about 45 days.

Two species of vegetation were unaffected by the covering even after 60 days of continuous cover. These plants were *Sagattarius latifolia*, known as arrowhead, and *Chara vulagaris*, commonly called musk grass, a low-growing green algae and not like the other plants.

Arrowhead is hard to control because it emerges from the water level and is difficult to cover. Also it grows from a tuber and not from a rooted system like the others. Being a perennial plant it need not reseed itself every year as the annuals must do in order to propagate themselves.

Chara is extremely difficult to control by any means, even chemically. However, both of these species are relatively scarce and the primary intent was not to control them. Control, however, was attempted since both species were present in the control plots.

Mayhew hopes to experiment this year with a sinking cover in an attempt to control these difficult species. The cover will be of vinyl rather than polyethylene since the polyethylene floats while vinyl will sink.

Use of a cover makes it simple for farm pond owners to control farm pond vegetation themselves. The floating plastic requires weights on the corners to prevent the wind from picking it up.

Jack Kirstein Photo.

An ordinary jar filled with sand makes a handy weight for the corners of the cover.

OFF THE BEATEN TRACK

Gitchie Manitou—Another World

Denny Rehder

Gitchie Manitou is an ancient land of cactus and rock, the rock dating back nearly two billion years. This state preserve is located in the far northwest reaches of the state with South Dakota bounding it on the north and west.

The area is unique for several reasons. It has the oldest rock exposures in the state, prickly pear cactus, and a variety of wild flowers. The preserve marks a transition from lush prairie land to semi-arid country.

Aptly named Gitchie Manitou, the Indian word for God, it stands apart from any other place in the state. The visitor feels he may be in another world, surrounded as he is by the red outcroppings of rock and the barren countryside.

The rock formation known as Sioux Quartzite is the outstanding attraction at Gitchie Manitou. The exposures in the preserve and another exposure a few miles east are the only ones in the state. The quartzite was originally waterlaid sand. The sand was permeated by water holding in solution silica which crystallized around the sand grains and cemented them together, forming a solid quartz mass. The color comes from the presence of an iron oxide in the rock.

The quartzite is extremely hard and makes fine building blocks.

Before it became a preserve Gitchie Manitou was known as the Jasper Pool. The name came from a beautiful pond of that color set into the quartzite.

The origin of the Jasper Pool is not clear, although all the evidence seems to support the theory that it was formed by a quarrying operation. In the 1897 report of the Iowa Geological Survey a picture is shown of the Jasper Pool, but no mention is made of its origin.

However, in the mid-1890's the State Board of Control acquired the area encompassed by the present preserve. A prison camp was established in temporary barracks and the prisoners quarried the quartzite. A railroad spur was extended from Sioux Falls to the quarry site. It is not known how long the quarrying operation lasted but it couldn't have been very long. The depth of the pool appears to be around 20 to 30 feet. Since the size of the pool is rather small, it appears that the quarry was soon abandoned.

So there the story rests. The Jasper Pool isn't Jasper anymore, it's rather muddy due to the flooding of the nearby Big Sioux River. $20,000 was appropriated by the last legislature for removal of silt deposited by the floodwaters over the years.

Gitchie Manitou is a beautiful place with a small picnic area, toilets, and shelterhouse. It's the place to go if you really want to get off the beaten track.

WALLEYE—TO STOCK OR NOT TO STOCK

Carol Buckmann
Everett Speaker

ether walleye stocking is a ea to cure all ills or a waste e has long been a controver- uestion.

ie fish culturists maintain he hatchery is a blessing to ish population while other ally known fishery scientists all stocking is a waste of nd money.

leyes have been stocked in since 1894 in an effort to es- this fish in all waters of ate. With the advent of mod- tcheries in about 1915, there een continuous stocking of tronomical number of wall-

pite these introductions, only areas have produced suffi- numbers to offer consistently fishing.

n effort to settle the walleye ng question in Iowa waters, ong-range stocking experi- were set up cooperatively he Conservation Commission ie Fishery Research Unit at State University. The crux problem was to determine if ry introduction would in- the walleye population.

experiment was originally under the direction of Dr. M. Bailey, Curator of Fish- University of Michigan. It ntinued under the direction fessor Kenneth D. Carlander, tment of Zoology and En- gy, Iowa State University, ff members of the Conserva- ommission.

it Lake, 6,000 acres, and Lake, 3,600 acres, were d for the project. Both lakes ned reasonably good popu- of natural spawning wall- s well as a multitude of oth- species.

carrying out the project, Lake was not stocked with es for five years (1944 to But in the five following it was stocked annually 3,000 walleye fry per acre. Lake was stocked every oth- r for ten years with an aver- 7,000 per acre.

pite some erratic eruptions eclines in other fish popula- there was sufficient evidence w an increase in the walleye tion in both lakes during riods of stocking.

both Clear Lake and Spirit during the years of stocking, walleye fingerlings were col- by seining the beach areas n the years when there was cking.

data also indicated more walleyes were taken in ex- ental gill nets and by anglers years walleyes were stocked when the hatcheries were not ing.

an effort to "clinch" this work and determine the most ve stocking levels for the fu- an additional twelve year

Jim Sherman Photo.

Stocking is controversial. Iowa biologists have been studying the long-term value of wal'eye stocking in new areas, or as a "booster shot" for established populations.

study is in progress on Clear Lake.

Close observations will be made and evaluated by the Fisheries Research Unit at Iowa State University. Introduction will be made from the hatchery at rates varying from 500 to 15,000 walleyes per surface acre.

Since walleyes have been stocked in Iowa for so many years, it is difficult to determine the original range. It probably included the deeper lakes on Iowa's northern border, the Mississippi river and a few of its major tributaries.

Under the present fisheries plan in Iowa, there are four different conditions for stocking. The first plan involves introducing walleyes into new waters. These include new lakes, impoundments and streams which for some reason are entirely void of fish. In these areas, often the entire fish population has been eliminated by chemical treatment, or temporary drainage.

Another method is re-introduction into shallow, natural lakes that support walleye populations under normal conditions but have periodical partial or complete losses. These losses are usually due to drought conditions or extreme winters.

The third method, introduction into man-made lakes and impoundments, is largely confined to artificial lakes ranging from 100 to 400 acres. These support reasonable numbers of fast growing fish but fail to reproduce naturally. Since the lake bottoms are principally silt, the walleyes lack suitable spawning grounds.

The last plan involves the introduction of walleyes into waters already supporting spawning populations as a "booster shot" to increase the fish number in a limited area. (A method often challenged by fisheries workers.)

There is still much to be learned about walleye introduction into new waters and waters with established populations. While the studies indicate populations can be increased, there are many facets of research that must be further investigated before such a program can be advocated.

PRAIRIE ROSE LAKE DEDICATION

Prairie Rose Lake State Park will be dedicated to the people of Iowa, Saturday, June 16, at 9:30 a.m. The new park was named for the state flower, wild rose, and also for a pioneer village in the vicinity named Prairie Rose, which disappeared around 40 years ago.

Located in Shelby County, 4½ miles east of Harlan on State Highway 64 and 3½ miles south of Highway 64 on a country road, it is hoped in the future Prairie Rose will host picnicking, camping, boating and fishing. Future plans for this brand new area depend upon money available from the legislature. Plans for this year include tree plantings and a parking area.

At the present time, the lake is being drained as part of a program for stabilizing the dam. The dam is 925 feet long impounding 218 surface acres of water at a total cost of $227,236.

Prairie Rose State Park is one of the outdoor recreation areas which was considered under the twenty-five year Conservation Plan drawn up in 1933.

Included in this plan were some seventeen state parks where the natural beauty could be preserved and where such recreational facilities as swimming, camping, vacationing, and organized winter sports could be provided.

Investigation and reconnaissance surveys for a lake and park in Shelby County were begun in 1938. The 52nd General Assembly appropriated $2,713,000 for the continuation of the twenty-five year Conservation Plan and of this amount $269,000 was allocated for a lake and park in Shelby County. An additional $120,000 was allocated to this project by the 53rd General Assembly.

A total of sixteen possible sites were carefully studied and evaluated for the park and lake. In 1952 the proposed acquisition map was drawn up for the present site of Prairie Rose State Park.

This new area promises to provide much fine recreation for residents and visitors.

The "cow" or female sea lion weighs up to 300 pounds; the bull twice that.

BIG IOWA FISH RECORDS

The State Conservation Commission is anxious to establish records of large Iowa fish. These fish must be taken by legal means from Iowa waters. Fish must be measured from tip of snout to tip of tail (total length), and weighed on scales legal for trade to the nearest ounce, with at least two signatures from witnesses attesting to the weight and measurement. The fish should be photographed with the angler. Your letter to us should include the following information: name and address of angler, date, name of stream or lake and county where taken, total length, weight, method of catch, photograph of fish with the fisherman, and the signature and address of two witnesses to the weighing. No photographs will be returned.

A list of the largest fish of each kind will be published and record holders will be notified in January, 1963.

All records should be sent to the State Conservation Commission, East 7th and Court, Des Moines.

CATFISHING—

(Continued from page 41)

are nocturnal feeders. That is, they feed primarily during darkness. As the name, channel catfish, implies, they feed for the most part in the river channel. They take only a small amount if any food during the daytime; therefore, the best time to be on the river is in the early evening when feeding is heaviest, and then fish in the channel.

If you are adverse to night fishing, you can enjoy successful daytime fishing but you will have to use a different technique.

In the daytime fish the shelter areas beneath snags, sunken logs, drift piles, etc. Since catfish exhibit a certain aversion toward daylight feeding, it will be necessary for you as a fisherman to search out the hungry individuals. So, if you fish during the daylight hours, fish the cover areas and move from one to another frequently.

Baits

Since a catfish will eat anything from soup to nuts, your choice of bait may include anything from a long list, depending upon your likes and desires. Regardless of the kind of bait you choose, the main factor is that you have the utmost confidence in it as a fish getter. If you lack confidence in your bait, you will not fish it right, and unless you fish right you can't expect to catch fish.

Even though catfish eat any and everything, at times they are apt to become as fastidious as a dowager on a diet about what they consume. In cases like this, it is a good idea to try several different baits before giving up.

A few baits found to be particularly good include blood, cutbait, cheese bait, carp chunks and chicken guts. Blood is probably the best catfish getter of all baits, but has disadvantages in that it requires a lot of attention in preparation. In addition, it is so attractive to undersize catfish that they will clean your hooks before the more deliberate large fish get a chance to hit.

Cut-bait is prepared by first scaling and then filleting any species of rough fish (carp, sucker, buffalo). Cut the fillets into chunks and let them sour for a day in a glass jar. Cut-bait has an advantage of staying on the hook. Little fish can chomp on it by the hour, and if the big ones are hitting slow, you can wait 'em out before the fiddlers steal your bait.

Carp chunks and chicken guts are very good baits, but are messy to handle. Then, too, unless the hook is properly baited, they are apt to string out and many a strike will be missed by the catfish hitting the bait trailing behind the hook.

Cheese baits work well for catfish, but like blood they are apt to be cleaned from the hook by small fish. These baits find particular favor in that they are readily available in stores and sporting goods shops and require no special attention between fishing trips.

Be On Your Toes

If you are going to get any number of catfish you will have to be on your toes every second that your bait is in the water. To catch more fish, have your rod in your hand at all times and be ready to set the hook the instant the fish takes the bait. You won't have any luck if you fish by lying on your back counting the stars with your pole five or six feet out of grasp when the fish strikes. By all means fish while you are at the river and do your star-gazing someplace else.

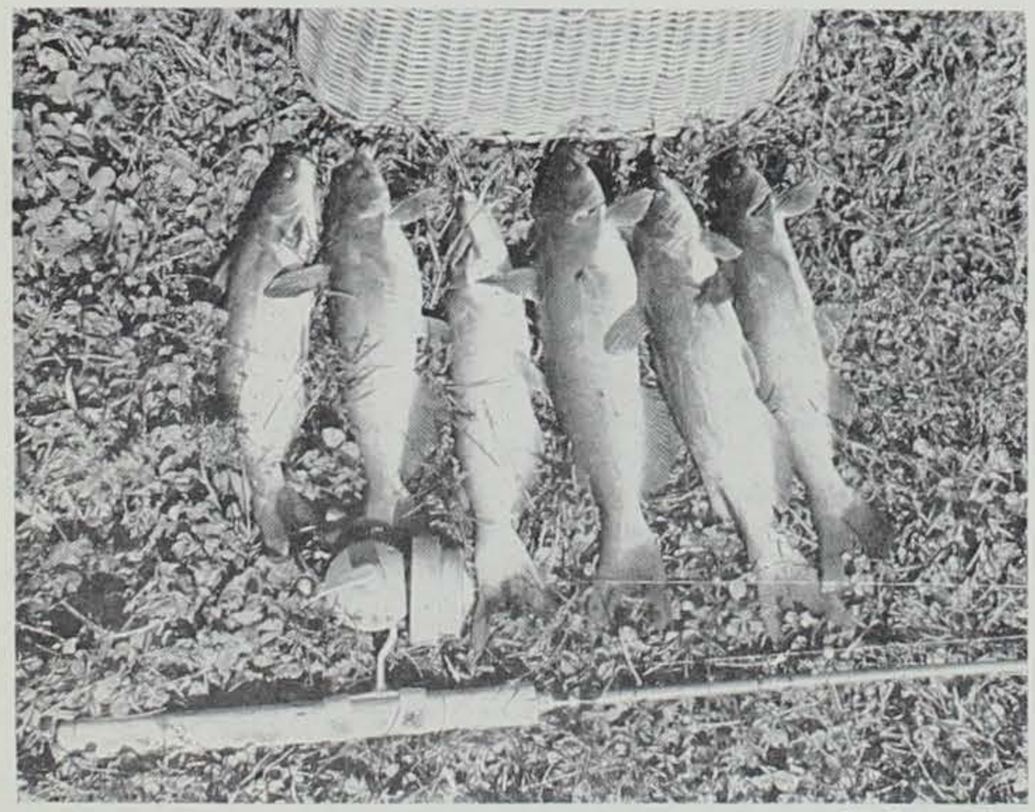
The anglers who have been observed to catch fish follow the techniques set out above. If you are not satisfied with the number of catfish you are catching, now would be a good time to analyze your fishing procedure and, if you are not following all of the rules, how about changing and seeing the difference?

For purpose of clarity, the techniques are summarized as follows:

1. Avoid disturbing the water or making unnecessary noise.
2. Use lots of line.
3. Fish early evening in the channel.
4. During day, fish shelter areas (snags, roots, drift piles). Move from one to another frequently.
5. Have confidence in your bait.
6. If your choice bait does not work use others before giving up.
7. Be alert at all times. Hold your pole and be ready to set the hook the very instant you get a strike.

A bird's eyesight is generally sharper and capable of reaching farther than any other animal.

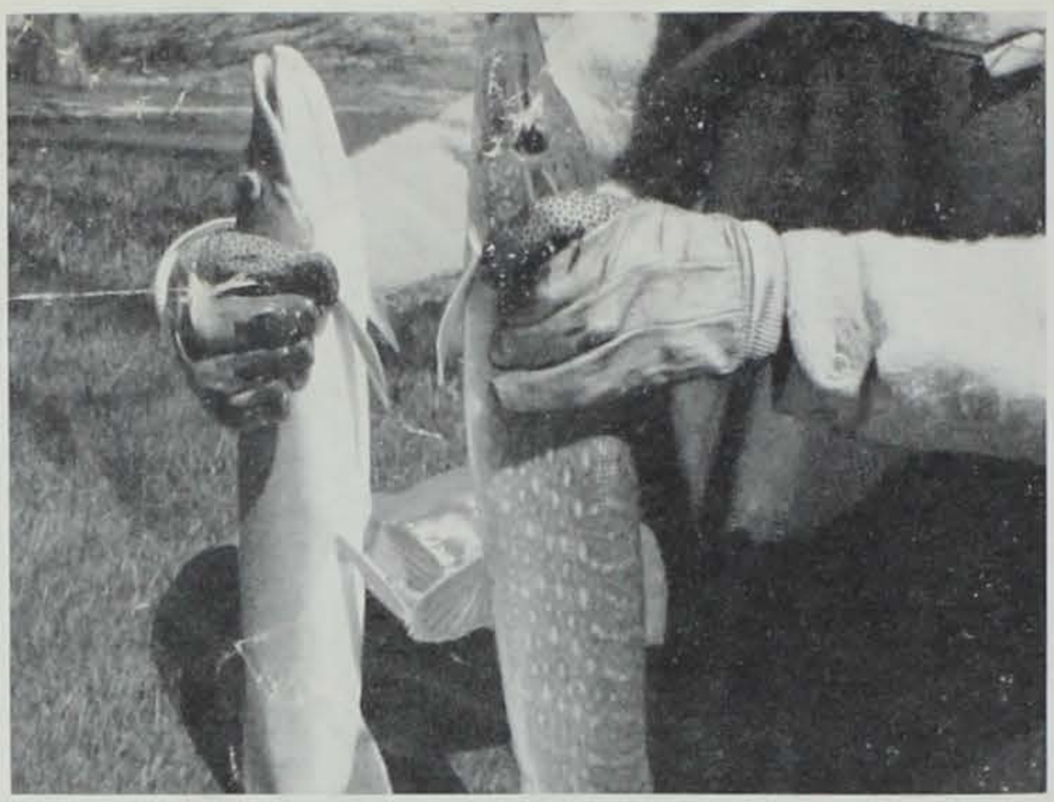
Only two types of mammals lay eggs: the duckbill and the spiny anteater.



Jim Sherman Photo.

These catfish were caught in half an hour by applying the techniques described.

SILVER NORTHERNS IN NORTHWEST IOWA



The markings of the silver northern on the left contrasts sharp'y with the common northern. Silver northerns are mutants, but breed true.

We Have Them Too!

Tom Moen
Fisheries Biologist

A recent issue of an outdo magazine reported the occurre of what was called "a new su species of northern pike" fro several lakes in Canada and nort ern United States. The name, "si ver northern" or "silver pike," derived from the coloration of th fish, a dark gray on the back a a silvery gray on the sides. Th striking color variation has all th physical characteristics of the no mal northern pike. Many of th fisheries workers in the Iowa lak region that read the short not realized that this color variat or mutation occurred locally. I fact, those that worked at th State Fish Hatchery at Spirit La could show visitors the norm pike and the silver northern in th number one aquarium in th hatchery.

Mistaken for Muskies

The silver northern has bee known from the Okoboji chain lakes for a number of years. Fa Fronk, fish hatchery superinten ent, remembers seeing his fir silver northern in Spirit Lak about 1930. The writer's first ex perience with this fish occurr during the summer of 1946 when large number of fishermen re ported catching muskellunge fro West Okoboji Lake. Upon invest gation the majority of thes catches were identified as silv northern.

In the spring of 1947 and fo several seasons following, a num ber of silver northern were take in traps. Eggs and fry from sev eral of these fish were obtaine through normal hatchery tech niques. It was found, as hav other investigators, that all th young born of silver northern par ents have the typical coloration o their parents. Normal northe pike crossed with silver northe produced young with odd colora tion, not typical of either parent None of these odd colored fish hav been noted in the local populatio of northerns. It appears that thes fish do not cross with norma northerns under natural condi tions.

The number of silver northern in the Dickinson County lake has declined since 1950. A weigh of seven pounds is considered larg among the Iowa silver northern.

Those interested in pursuing thi subject in more detail are referre to the book, "Northern Fishes," b Eddy and Surber (Revised Edi tion, 1947, the University of Min nesota Press) with an excellen color photograph of the silve northern.

Specialists in the naming of fis have not seen fit to confer a ratin or classification of subspecies t this color variation of the norther pike, *Esox lucius.*